Picture improvement circuit for colour TV

Technology: Bipolar

Features

- Integrated, matchable gyrator chain, adjustable in steps of 45 ns from 730 to 1045 ns
- Steepens the slope of the colour difference signals (R–Y) and (B–Y), suitable for pos. and neg. colour difference signals
- Y-output with less delay for applications with future features (i.e. modulation of horizontal deflection)

Case: 18-pin dual inline plastic

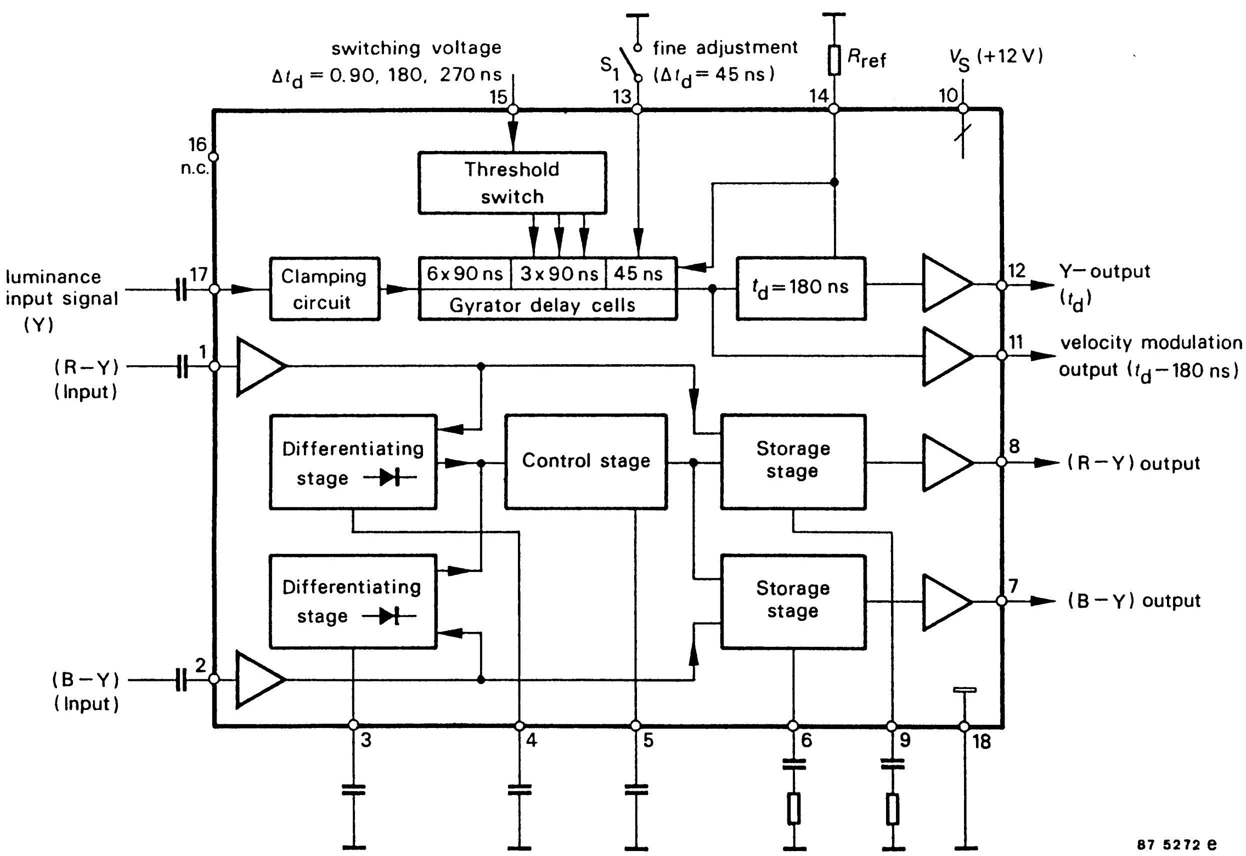


Figure 1 Block diagram

Absolute Maximum Ratings

Reference point Pin 18, unless otherwise specified

Parameters		Symbol	Value	Unit
Supply voltage	Pin 10	V_S	13.2	V
Voltages	Pin 1,2,12,15		V_S	
		$V_7 – V_6$	5	V
		$V_8 – V_9$	5	V
	Pin 11	V_{11}	V_S – 3 V	V
	Pin 17	V_{17}	0 to 7	V
Currents				
I_6	Pin 6	I_6	±10	mA
	Pin 9	I_9	±10	mA
Ambient temperature range		T_{amb}	0 to +70	°C
Storage temperature range		T_{stg}	–25 to +125	°C
Maximum power dissipation		P_{tot}	1.1	W
No DC-voltages at Pins 3, 4, 5, 6, 9, 13, 14				

Thermal Resistance

Parameters	Symbol	Maximum	Unit
Junction ambient	R_{thJA}	70	K/W

Electrical Characteristics

V_S = 12 V, T_{amb} = 25°C, test circuit figure 2, reference point Pin 18, unless otherwise specified

Parameters	Test Conditions / Pins	Symbol	Min.	Typ.	Max.	Unit
Supply voltage range	Pin 10	Vs	10.8	12	13.2	V
Supply current	Pin 10	I_S		35	50	mA
Luminance channel						
Composite input signal	Pin 17	$V_{17(pp)}$		1.0	1.4	V
DC clamping level	Pin 17	V_{17}	1.3	1.5	1.7	V
Sweep input current	Pin 17	I_{17}			12	μA
Output current	Pin 11,12	$+I_{11,12}$ $–I_{11,12}$			0.4 1	mA mA
Signal attenuation	Pin 11–17 Pin 12–17	d d	 5.5	8,5 	 8.0	dB dB
Frequency response, V_{15} =12 V; R(pin 14) = nom. 1.2 k, Pin 13 n.c.						
	3 MHz, ref. 0.5 MHz	Δv	0		3.0	dB
	5 MHz, ref. 0.5 MHz	Δv	–3		2.0	dB
DC voltage at output	Pin 11	V_{11}	2.0		2.6	V
DC voltage at output	Pin 12	V_{12}	9.8		10.8	V

Parameters	Test Conditions / Pins	Symbol	Min.	Typ.	Max.	Unit
Signal delay [1)], ($R_{Pin\ 14}$ = 1.2 k; Pin 13 n.c.)						
	t_d (Pin 17–12)					
	V_{15} = 0 to 2.5 V	t_d	670	730	790	ns
	V_{15} = 3.5 to 5.5 V	t_d	760	820	880	ns
	V_{15} = 6.5 to 8.5 V	t_d	850	910	970	ns
	V_{15} = 9.5 to 12 V	t_d	940	1000	1060	ns
Fine adjustment, Pin 13 grounded		t_d	+30	+45	+70	ns
Luminance delay	Pin 11			t_d–180 ns		
Delay time temperature co-efficient				0.001		1/K
Delay time supply voltage coefficient				–0.03		1/V
Input current, Pin 15						
	with V_{15} = 0 to 2.5 V	$-I_{15}$			25	µA
	with V_{15} = 3.5 to 5.5 V	$-I_{15}$			16	µA
	with V_{15} = 6.5 to 8.5 V	$-I_{15}$			8	µA
	with V_{15} = 9.5 to 12 V	$-I_{15}$			1	µA
Colour difference stages						
Input DC-level	Pin 1, 2	$V_{1,2}$	3.8		4.8	V
Input resistance	Pin 1, 2	$R_{1,2}$	8	12	16	k
Input signal	(R–Y) Pin 1	$V_{1(pp)}$		1.05	1.50	V
	(B–Y) Pin 2	$V_{2(pp)}$		1.33	1.90	V
Channel amplification						
	(B–Y) Pin 8–1	v_{8-1}	–1	0	1	dB
	(B–Y) Pin 7–2	v_{7-2}	–1	0	1	dB
Output resistance	Pin 7, 8	$R_{7,8}$		100		Ω
Output current	Pin 7, 8	$+I_{7,8}$			400	µA
		$-I_{7,8}$			1	mA
Output DC voltage	Pin 7, 8	$V_{7,8}$	3.8		4.8	V
Rise time	Pin 7, 8	t_r		150	210	ns

1) Delay time is proportional to R_{Pin14}

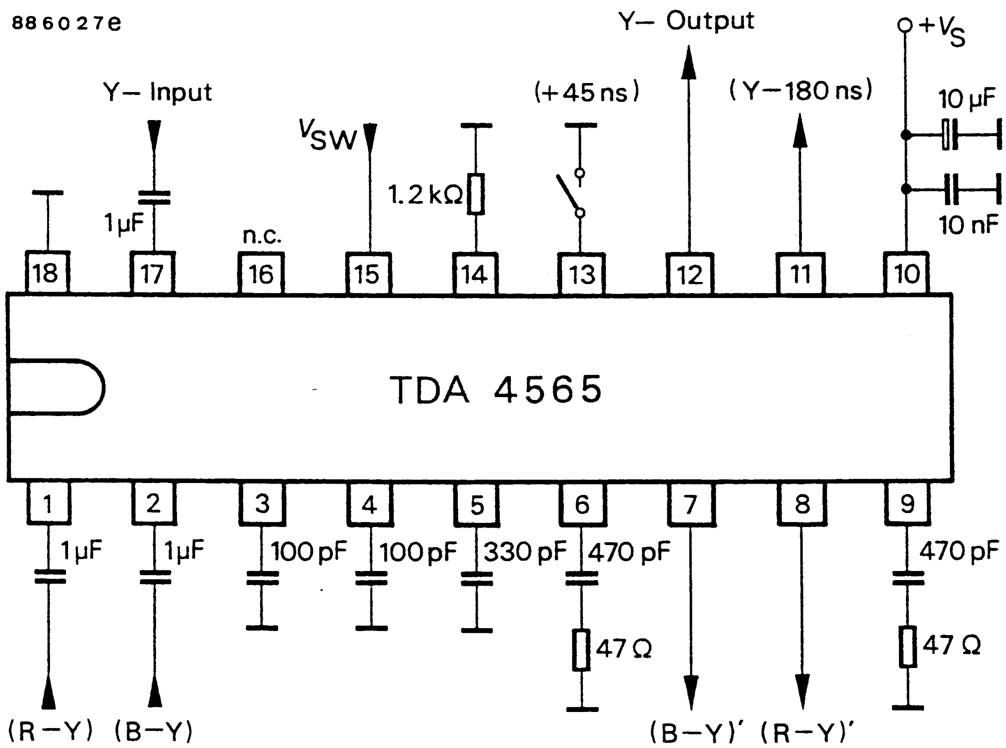
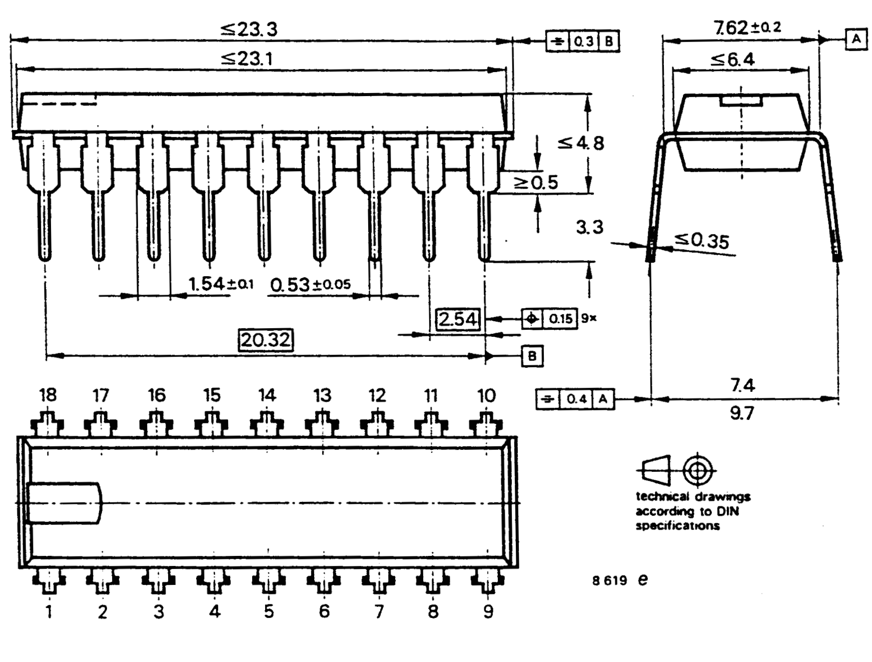


Figure 2 Test circuit

Dimensions in mm



Case:
DIP 18-leads

OZONE DEPLETING SUBSTANCES POLICY STATEMENT

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements and
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

Of particular concern is the control or elimination of releases into the atmosphere of those substances which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) will soon severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of any ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA and
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with and do not contain ozone depleting substances.

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